

Code No: R5421303

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B. Tech IV Year II Semester (R05) Regular & Supplementary Examinations, April/May 2010  
**TELEMETRY & TELECONTROL**  
(Electronics & Control Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE questions  
All questions carry equal marks

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1. Draw the sketch of pneumatic telemetry system and explain. How is fluid line characterized? What is the important parameter in such a system?
2. Define the terms:
  - (a) Multiplexer
  - (b) Demultiplexer.And explain their role in Telemetry System.  
List out their advantages.
3. Draw the block diagram of Pulse Telemetry System and explain about each block.
4. (a) Distinguish between FM and PM.  
(b) Describe the working of FM generator.
5. Explain in detail about the sources of error in PWM Telemetry System.
6. Briefly explain about the optical fiber construction details and show a figure for transmission of light rays and discuss about the refractive index distribution with a graph.
7. Explain briefly digital frequency modulation in Telecontrol transmission. Draw a neat sketch and explain frequency code method used for remote transmission.
8. Explain about the telecontrol installation working with statistical time and arbitrary time multiplex.

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1. (a) Explain how electrical telemetry is classified and explain one System.  
(b) What is meant by telemetry? Mention its future applications in business, communications, industry, military research and transportation.
2. (a) Explain the uses of optical telemetry.  
(b) Give an account of PCM/PM or PCM/FM standards.
3. How is voltage converted to current for use in telemetering system? Explain with suitable diagram and analysis.
4. Explain the concept of transmission and receiving techniques in radio telemetry system.
5. Explain with a neat sketch generation and demodulation of PWM, PPM.
6. What is dispersion? Explain the types of dispersion. How does dispersion affect transmission in a fibre?
7. Explain about the Pulse Count Method for digital sum and mean value used in Digital Telecontrol method without coding.
8. Explain how pulse telegram method is used in dam installation and hydro power stations.

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1. (a) Differentiate Telemetry from Communication, Information theory, Data processing and Instrumentation.  
(b) Draw the sketch of pneumatic transmitter and explain.
2. (a) Describe the working of Synchro Transmitter and Receiver Telemetry System.  
(b) Draw a neat sketch and explain the operation of Force balance current system.
3. Which system is used for conversion of physical parameters of frequency modulated sub carriers in frequency telemetry system? Explain with sketch.
4. What types of RF amplifiers are chosen in receiver system for improved performance? Why are AGC circuits used in such systems? Discuss.
5. Draw a neat sketch and explain about Ramp encoder and Feedback Encoder used in PCM telemetry System.
6. Describe the principles of energy transmission through an optical fiber. Derive an expression for the numerical aperture of an optical fiber and explain the physical significance of parameter.
7. (a) Differentiate between PCM and DPCM.  
(b) Explain Pulse telegram receiver system with a neat sketch.
8. List out briefly explain the environmental and interface conditions of Telecontrol apparatus.

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1. Explain about Data Presentation techniques used in Telemetry System.
2. (a) Differentiate between motion balance and force balance current Telemetry System.  
(b) How is propagation of light supported in a fibre optic cable? What is the critical angle of incidence and on what factors does it depend?
3. Explain the concept of different electrical systems used in short distance telemetering.
4. Write about the digital codes used in error detection and correction and explain briefly.
5. Explain how radio telemetry is used in Hydroelectric Project with necessary sketch.
6. (a) Write in detail about pulse dispersion in step index fibres with necessary equations, figures, and graphs.  
(b) List the advantages of optical fibres over conventional cables.
7. Draw a neat sketch and explain Pulse Code transmission of telecontrol data. Write about the advantages of Electronic PCM system in contrast to electro mechanical PCM system.
8. Explain how Pulse Telegram method is used in dam installation and Hydro Power Stations.

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